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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/594,121 | 11/28/2006 | Jeffrey Wilson Thornton | 1328-35 | 7360 |
| 23117 | 7590 | 08/17/2009 | EXAMINER | |
| NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203 | | | | HEINCER, LIAM J |
| ART UNIT | | PAPER NUMBER | | |
| 1796 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/594,121 | THORNTON ET AL. |
| | Examiner | Art Unit |
| | Liam J. Heincer | 1796 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 26 May 2009.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-4,6-8 and 10-19 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1,3,4,6,7 and 10-19 is/are rejected.
 7) Claim(s) 2 and 8 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 26, 2009 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 4, 6, 7, 10, 11 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Fischer et al. (US 2007/0006875).

The applied reference has a common assignee and one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this

application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Considering Claims 1, 6, and 7: Fischer et al. teaches a process for gelatinizing starch (¶0001) comprising subjecting starch and a aldehyde functional starch with greater than 2% of the monomers having aldehyde groups (¶0010-12) to thermo-mechanical treatment (¶0019). Fischer et al. teaches that half of the aldehyde groups in the dialdehyde can be converted to carboxyl groups/teaches one aldehyde groups per monomer unit (¶0011).

Considering Claims 3 and 4: Fischer et al. teaches 5 to 25% of the monomers having aldehyde groups (¶0012, Table 1).

Considering Claim 9: Fischer et al. teaches the carbohydrate as being present in an amount of 2 to 50 weight percent (¶0013, Table 1).

Considering Claim 10: Fischer et al. teaches the thermo mechanical treatment as being at a temperature between 80 and 100 °C (¶0019, Example 1).

Considering Claim 11: Fischer et al. teaches the thermo mechanical treatment as preferably being carried out continuously (¶0020).

Considering Claim 19: Fischer et al. teaches extruding the mixture (Example 1).

Claims 12 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Fischer et al. (US 2007/0006875).

The applied reference has a common assignee and one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Considering Claim 12: Fischer et al. teaches a granulate of thermoplastic starch (¶0022) comprising an aldehyde functional carbohydrate with greater than 2% of the monomers having aldehyde groups (¶0010-12) in an amount of 2 to 50 weight percent

(¶0013, Table 1), glycerol and water (¶0014-15, Table 1). Fischer et al. teaches that half of the aldehyde groups in the dialdehyde can be converted to carboxyl groups/teaches one aldehyde groups per monomer unit (¶0011).

Considering Claim 15: Fischer et al. teaches adding a polyester to the composition (¶0017).

Claims 13 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Fischer et al. (US 2007/0006875).

The applied reference has a common assignee and one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Considering Claim 13: Fischer et al. teaches a shaped starch product (¶0022) comprising an aldehyde functional carbohydrate with greater than 2% of the monomers having aldehyde groups (¶0010-12) in an amount of 2 to 50 weight percent (¶0013, Table 1), glycerol and water (¶0014-15, Table 1). Fischer et al. teaches that half of the aldehyde groups in the dialdehyde can be converted to carboxyl groups/teaches one aldehyde groups per monomer unit (¶0011).

Considering Claim 17: Fischer et al. teaches adding a polyester to the composition (¶0017).

Claims 14 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Fischer et al. (US 2007/0006875).

The applied reference has a common assignee and one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention

disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Considering Claim 14: Fischer et al. teaches a blown starch film (¶0022) comprising an aldehyde functional carbohydrate with greater than 2% of the monomers having aldehyde groups (¶0010-12) in an amount of 2 to 50 weight percent (¶0013, Table 1), glycerol and water (¶0014-15, Table 1). Fischer et al. teaches that half of the aldehyde groups in the dialdehyde can be converted to carboxyl groups/teaches one aldehyde groups per monomer unit (¶0011).

Considering Claim 18: Fischer et al. teaches adding a polyester to the composition (¶0017).

Claim 16 is rejected under 35 U.S.C. 102(e) as being anticipated by Fischer et al. (US 2007/0006875).

The applied reference has a common assignee and one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Considering Claim 16: Fischer et al. teaches a starch article (¶0022) comprising a flavor/food component (¶0018) and an aldehyde functional carbohydrate with greater than 2% of the monomers having aldehyde groups (¶0010-12) in an amount of 2 to 50 weight percent (¶0013, Table 1), glycerol and water (¶0014-15, Table 1). Fischer et al. teaches that half of the aldehyde groups in the dialdehyde can be converted to carboxyl groups/teaches one aldehyde groups per monomer unit (¶0011).

Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Billmers et al. (US Pat.I 4,788,280).

Considering Claim 16: Billmers et al. teaches a starch composition comprising starch/a food product (11:34-49); and a carbohydrate modified with aldehyde groups (4:16-25) Billmers et al. also teaches an embodiment comprising 16% of the hydroxyl groups modified (14:45-55). Statistically, some of these monomers will be monosubstituted.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 12-15, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Billmers et al. (US Pat.I 4,788,280) in view of Bengs (US Pat. 6,313,105).

Considering Claims 12-14: Billmers et al. teaches a starch composition comprising gelatinized/thermoplastic starch (11:34-49); a carbohydrate modified with aldehyde groups (4:16-25) and water (25:13-25). Billmers et al. also teaches an embodiment comprising 16% of the hydroxyl groups modified (14:45-55). Statistically, some of these

monomers will be monosubstituted. Billmers et al. teaches the composition as being formed into a film or sheet (25:12-26:20).

Billmers et al. teaches the aldehyde containing carbohydrate as being present in the composition in an amount of 0.1-15% of the composition (11:7-21). This overlaps with the claimed range of 3 to 75% by weight.

Billmers et al. does not teach the composition as having a plasticizer. However, Bengs teaches adding a plasticizer to composition comprising gelatinized starch and an aldehyde starch (4:18-38). Billmers et al. and Bengs are analogous art as they are concerned with the same field of endeavor, namely gelatinized starch compositions. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the plasticizer of Bengs in the composition of Billmers et al., and the motivation to do so would have been, as Bengs suggests, to increase the water resistance of the adhesive (4:49-57).

Considering Claim 15, 17-18: Billmers et al. teaches adding a polyeseter fiber to the composition (1:26-37).

Allowable Subject Matter

Claims 2 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: There is nothing in the prior art of record to teach using carbohydrates featuring aldehyde groups at the C-6 position, or carbohydrates made by the process of claim 8 in the claimed gelatinization process.. While these carbohydrates are known, see e.g. WO 0050621, there is nothing in the art to teach or suggest using them in the claimed process.

Response to Arguments

Applicant's arguments with respect to claims 1-4, 6-8, and 10-19 have been considered but are moot in view of the new ground(s) of rejection.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

LJH
July 8, 2009